RESTRICTED

Not for Publication or Communication to any person except for official purposes.

PALESTINE.

DEPARTMENT OF AGRICULTURE AND FISHERIES.

ANNUAL REPORT

FOR THE YEAR

1943-1944

(YEAR ENDED MARCH 31, 1944).

No. S. 5 of 1944.

PRINTED BY THE GOVERNMENT PRINTER, PALESTINE.

ANNUAL REPORT
OF THE
DEPARTMENT OF AGRICULTURE AND FISHERIES
For the
YEAR ENDED MARCH 31, 1944.

GENERAL SURVEY.

At a time when cereal production is of paramount importance the yields of wheat and barley were disappointingly poor in two successive seasons as a result of adverse weather. Production of other crops was, however, very satisfactory and towards the end of the year under review growers were further encouraged by the arrival of some agricultural machinery and the resumption in a small way of citrus exports to the United Kingdom. The most gratifying feature in agricultural production was the large scale planting of potatoes after the early arrival of an adequate supply of excellent seed from the United Kingdom.

SECTION I.

AGRICULTURE AND FISHERIES IN PALESTINE, 1943-44.

MAJOR CROPS AND INDUSTRIES.

The Citrus Industry.

Area under Citrus.

2. It is estimated that the area of citrus at the beginning of 1943, namely some 276,500 dunums, was further reduced by uprooting during the year by about 9,000 dunums, bringing the total area uprooted since 1938 to about 25,000 dunums.

Citrus Cultivation.

3. Whilst the effect of lack of fertilisers was still evident, especially nitrogen, and shortage and high cost of labour was again a limiting factor, there was a marked improvement in 1943 in the general condition of groves, many growers paying considerably more attention to cultivation, manuring and rejuvenation of neglected plantations. Loans at the rate of £P.5 per dunum were issued in respect of some 155,000 dunums. Once again no Rural Property Tax was levied on citrus.

The Citrus Crop.

4. The bloom was not particularly heavy but the set was good. The crop was estimated to total some 9 million cases or approximately double that of the previous season.

Export and Disposal of the Citrus Crop.

5. The following table summarises the exports during the 1943-44 season (1.6.43—31.5.44):—

Citrus Fruit	Export Cases	Estimated Value £P. F.O.B.
Oranges (*)	1,022,891	875,200
Grapefruit	12,446	8,700
Total exports in cases	1,035,337	883,900
Exports in bulk (55,582 tons) (*) (**) equivalent to ...	1,389,550	275,800
TOTAL	2,424,887	1,159,700

(*) Includes 26,970 cases of Valencia oranges and 300 tons of fruit in bulk of 1942-43 crop exported in June, 1943.

(**) Exports in bulk: oranges, 53,327 tons; grapefruit, 2,159 tons; lemons, 96 tons.

One Palestine Pound (£P.)=1,000 mils=One Pound Sterling.
One Dunum (metric)=1,000 metres=0.2471 acre.
Throughout this report the term "Ton" means the metric ton of 1,000 kilogrammes.

6. Of the cased exports, the United Kingdom (to which exports were resumed) and the Army each took about half a million cases, the balance of some 35,000 cases being exported to countries in and around the Middle East. Of the bulk exports, Syria and the Lebanon took 32,500 tons, Egypt 12,299 tons and Trans-Jordan 10,783 tons. The total cased and bulk exports in 1943-44 were respectively some 150 per cent. and 100 per cent. more than in 1942-43.

7. As regards utilisation in Palestine, the consumption by the civil population is estimated at about 2¼ million cases, the Army authorities placed local contracts for the equivalent of some 100,000 cases and citrus products factories utilised around 1 million cases.

8. Export prices per case f.o.b. were around 800 mils for Shamouti oranges, £P.1.300 mils for Valencia oranges and 700 mils for grapefruit. Bulk fruit prices mostly averaged £P.4—5 per ton on truck. Prices realised per case on tree were from 75—225 mils for Shamouti oranges, 350—500 mils for Valencia oranges, 75—100 mils for grapefruit and 200—300 mils for lemons; mandarines sold locally realised 250—500 mils per hundred on the market. The Shamouti orange and grapefruit prices were unremunerative.

Citrus Control and Marketing Boards.

9. Particularly on account of the anticipated surplus, much consideration was given by the Citrus Control Board to various schemes, to be operated by the Citrus Marketing Board, for controlled marketing of the crop. It was not found possible, however, to introduce a new marketing scheme during the season. The Board continued to render valuable service on a variety of problems affecting the industry. The Citrus Marketing Board dealt with the arrangement of Army and United Kingdom contracts, the licensing of exports and the release of packing materials. The Chief Horticultural Officer continued to act as Manager of the Citrus Control Board.

Citrus Products.

10. Manufacture of citrus products continued on approximately the same scale as in the previous season, about half the fruit utilised being for concentrated juice manufacture and the balance for pasteurised raw juice, squashes, marmalades and other minor products. Production of concentrated juice totalled around 800 tons of orange concentrate (some at 6 to 1 and some at 3½ to 1 concentration) and 450 tons of grapefruit concentrate (mostly 4 to 1 concentration); about 75 per cent. of the orange concentrate and most of the grapefruit concentrate were exported to the United Kingdom, the balance being mostly for Army requirements. With ruling prices, production of hand-pressed oil was unremunerative and therefore negligible; oil exports to the United Kingdom totalled some 17,000 lbs. of orange oil, 5,000 lbs. of grapefruit oil and 2,000 lbs. of lemon oil; fair quantities of lemon oil and relatively small quantities of orange oil were exported to various other destinations.

Wheat.

1942-43 *Season.*

11. Rust attacks and severe weed infestation followed an exceptionally cold and wet spring, and resulted in poor crops of grain of low quality. The area planted was 1,623,828 dunums and the crop was estimated at 63,343, tons.

1943-44 *Season.*

12. Late and inadequate rain resulted in partial failure of early plantings, and gave cultivators insufficient time for preparation of land. There was also a tendency to replace wheat with crops not under official control, while some of the land which was prepared for wheat too late in the season was ultimately sown to barley, a crop which can be successfully planted a month later. The area was thus reduced to 1,358,632 dunums. Attacks by "ed Duda" (*Syringopais temperatella*) were widespread and severe, thus further reducing the crop which is estimated to be 45,110 tons. Tillering was exceptionally poor, and the straw short; this resulted in very poor yields of "tibn" which is of great importance as fodder. Rust infestation was negligible, though 'Florence" wheat after some years of comparative immunity succumbed badly to *Puccinia glumarum.* About 1,000 tons of sound Trans-Jordan seed wheat was distributed by Government to farmers whose seed was too severely shrivelled by rust to germinate satisfactorily.

Barley.

1942-43 *Season.*

13. Adverse weather conditions affected barley less than wheat, and a moderately satisfactory crop was harvested. The area planted was 1,472,044 dunums and the yield 56,025 tons.

1943-44 *Season.*

14. While the area under barley increased slightly owing to the fact that it can be planted several weeks later than wheat (the first rains necessary for preparation of land being very late), the yields show a serious decline as a result of crop failure in the Beersheba district. The rainfall here was insufficient to bring the crop to maturity. Elsewhere yields were moderately good. The area planted was 1,473,620 dunums and the crop is estimated at 34,560 tons. The yield of straw is very poor.

Pulse Crops.

15. The area under pulses has again increased, partly owing to the high returns obtaining in the absence of control. In view of the high nutritional value both for human and animal consumption, and of the value of introducing a legume into the rotation, together with the effect of alternative crops on infestation of cereals by *Syringopais temperatella*, this increase may be regarded as very satisfactory. The unusually dry winter and spring resulted in good yields of all pulses. The total area under pulses was about 250,000 dunums, including about 50,000 dunums of chickpeas planted for harvest during the summer of 1944. Yields of lentils and field beans harvested in the spring of 1944 were estimated at 7,500 and 3,000 tons respectively.

Vegetables.

16. Production of vegetables continued at a high level throughout the year. Introduction of control of prices, while assisting the consumer, caused some reduction in vegetable planting in favour of green fodder. Supplies to the market, however, continued to be good except for seasonal shortage. Many million seedlings were again distributed from the Government nurseries.

Summer Crops.

17. The late wet spring of 1943 resulted in very heavy weed infestation and inability to prepare the normal area of land for summer crops. The area planted was therefore considerably reduced. Yields of millet and sesame were, however, satisfactory. Prohibition of export resulted in a glut of melons and very low prices, which, in turn, decreased the area planted with melons during the spring of 1944. The area planted with millet and sesame in the spring of 1944 appears normal.

Forage Crops.

18. Shortage of concentrates, and high prices paid for fodder have caused an increase in the area devoted to these crops. Yields from rain-grown crops were only moderate because of the light and irregular rains of the 1943-44 winter; irrigated crops gave satisfactory yields.

Potatoes.

19. Shortage of suitable seed was responsible for a small crop in the summer and autumn of 1943, and potatoes remained scarce and very expensive. During the autumn and winter several consignments of seed, totalling nearly 5,000 tons, were received from the United Kingdom. This import resulted in a great expansion in the area under potatoes; the condition of the crop is very promising and bumper yields are anticipated.

Fruits other than Citrus.

20. Weather conditions were in general favourable for fruit crops. Continued interest was shown in planting; olive planting was considerable in the hill and foothill areas and the banana area was extended by some 500 dunums; sales by private nurseries were around 80,000 deciduous fruit trees, 5,000 sub-tropical fruit trees and 250,000 vines.

Deciduous Fruits.

21. As regards crops of stone fruits, almonds were poor, plums very good and apricots poor (early varieties) to fair (late varieties); peaches were badly attacked by fruit

fly. Apricot prices averaged £P.50 and plum prices £P.75 per ton. Production was estimated at:— almonds — 700 tons; apricots — 4,000 tons, and plums — 1,300 tons. With apples, yields of local varieties were poor but those of introduced varieties were good; wholesale prices of apples and pears were very high at around £P.120 per ton. Pome fruit production was estimated at:— local variety apples — 1,800 tons; introduced variety apples — 1,500 tons; pears — 250 tons; quinces — 15 tons. About 1,000 tons of apples and smaller quantities of pears and plums were cold stored for the local market.

Olives.

22. Following favourable weather conditions, the olive crop in 1943 was, as in 1942, above normal and oil production totalled about 10,000 tons. Owing to surpluses from 1942, green olive pickling was restricted, but there was an increase in black olive pickling in the north. The price of green olives was from 40 to 70 mils per kilogramme and that of edible oil around £P.200 per ton. The dry autumn and a heavy attack by the olive fly reduced oil yields and also oil quality despite further improvement in press operation.

Bananas.

23. The crop was very good in the Jordan Valley but on the coast weather conditions delayed ripening. About 8,000 tons were produced in 1943 compared with around 6,000 tons in 1942. The price was very high until towards the end of the year when it was fixed at £P.85 per ton to the grower with subsequent reduction to £P.65.

Grapes.

24. The grape crop was generally good. High prices ranging from £P.30 to £P.60 per ton were maintained throughout the season. About 5,500 tons of grapes were used by the wine cellars.

Sub-Tropical Fruits.

25. The fig crop was only fair; prices were high at around £P.50 per ton. Good crops of pomegranates, mangoes, avocadoes, dates, annonas and guavas were obtained which realised very good prices.

Fruit Products.

26. Large quantities of plums and smaller quantities of figs, apricots, quinces and and apples were used in local jam factories. The high prices realised for fresh fruits have recently caused a reduction in the production of dried fruits.

Poultry and Beekeeping.

27. Further expansion of poultry was limited owing to shortage of feeding-stuffs. The average number of laying hens kept under the intensive system was between 500 and 600 thousand, and under the extensive system probably about 1 million.

28. Control schemes were brought into action and, from July, 1943, to March, 1944, nearly 50 million eggs were marketed through controlled channels. The condition of poultry was satisfactory and production moderately good considering the indifferent quality of war-time food.

29. The number of modern bee hives in the country remained at about 30,000. The honey crop was good, and was estimated to have exceeded 500 tons, much of which was sold at high prices ranging up to £P.15 per can of 25 kilogrammes.

30. Only 106 tons of damaged sugar could be made available equivalent to some 3 kilogrammes per hive.

31. During the autumn, the worst plague of hornets ever known locally was experienced and a large number of bee colonies were destroyed.

SECTION II.

WORK OF THE DEPARTMENT OF AGRICULTURE AND FISHERIES.

Establishment of the Department at the close of the Year.

Director	:	Major F. R. Mason.
Deputy Director and Controller of Agricultural Production	:	Mr. D. Stedman Davies.
Senior Agricultural Officers	:	Mr. B. G. A. Lowe.
	:	Mr. J. C. Eyre.
Chief Horticultural Officer	:	Mr. A. C. Shill.
Chief Plant Protection Officer	:	Dr. J. E. Hardy.
Chief Fisheries Officer	:	*Vacant.*

Agricultural Service.

26. The Deputy Director continued in his appointment as Controller of Agricultural Production throughout the year. His activities covered an extensive field of measures to increase local production as outlined in the previous report. These efforts were greatly assisted by the import of a limited amount of agricultural machinery and tractors. He has maintained close and continuous touch with the Middle East Supply Centre throughout the year and, together with three members of the Agricultural staff, attended the Agricultural Development Conference in Cairo in February. Two Senior Agricultural Officers were appointed in replacement of the Chief Agricultural Officer, and were placed in charge respectively of the two Northern and three Southern agricultural districts. In addition to their normal duties, the Senior Agricultural Officer, Jerusalem, acted as Senior Poultry and Beekeeping Officer from October onwards, while the Senior Agricultural Officer, Haifa, acted as Chief Fisheries Officer from January onwards. The Senior Agricultural Officer, Jerusalem, was also appointed as Assistant Food Controller to act as a liason between the Controller of Agricultural Production and the Food Controller.

27. The agricultural staff made an important contribution to the increase of food production by the growing and distribution of many millions of vegetable seedlings, and by the distribution of 5,000 tons of imported seed potatoes, 1,000 tons of seed-wheat, and half a million day-old chicks.

28. Varietal trials of cereals and other crops were continued at the Government Farm, Acre, and at other agricultural stations. Seeds of improved selections were again distributed to farmers with good effect. Investigation into the local causes of potato degeneration was commenced. Plans were made for a long-term cultivation experiment in the Beersheba district to compare modern mechanical cultivation methods with the local traditional methods.

29. Assistance was given throughout the year to the War Department in assessment of compensations and rentals, and by advice on cultivation of lands in the possession of this Department. Lectures on agricultural subjects were also given to military personnel.

30. Acknowledgment is again made to the staff of the Agricultural Research Station of the Jewish Agency, at Rehovot and to many farmers for their co-operation in field tests and in other directions.

Horticultural Service.

31. The work at the 8 Horticultural Stations was normal. Useful results regarding suitable varieties and stocks are now beginning to be obtained; these results are of increasing value with advisory and nursery work. The Horticultural Instructors were fully engaged on advisory work with growers, paying special attention also to improvement of olive production. Investigational work was carried out involving study of some 16 particular horticultural problems. Departmental nursery production totalled 14,200 budded fruit trees, 13,000 unbudded fruit trees, 1,900 olive and 26,000 grafted vines. 15,300 fruit trees were sold; 8,200 were distributed free or planted at stations; 2,700 were replanted and 1,000 destroyed. In the case of grafted vines, 16,200 were sold, 8,300 distributed free or planted at stations and 1,500 replanted or destroyed.

Fruit Inspection Service.

Grove Inspections for Loans.

32. The full point judging of all groves for 1943 loans which was begun at the end of February was completed in April; 439 groves were later re-judged on appeal. In March, 1944, a check judging was begun of the area of 213,700 dunums which qualified in 1943 from the standpoint of condition.

General Citrus Survey.

33. When other work permitted, survey of groves was continued. In 1943-44, no areas were surveyed for the first time but the earlier survey was revised in respect of 5,870 dunums located in 11 village areas.

Inspection of Fruit.

34. The regular staff was mainly engaged during the export season on inspection of fruit for export and for the Military authorities. 32,007 cases were rejected on first inspection, including 17,490 cases from United Kingdom consignments.

Citrus Wastage Investigations.

35. The research work on citrus fruit wastage, which is arranged by the Citrus Control Board, was continued in 1943-44 at the Jewish Agency Agricultural Research Station, Rehovot.

Plant Protection Service.

Identifications.

36. There were no communications on insect identifications between the Plant Protection Service and the Imperial Institute of Entomology, London. On 19 occasions the Chief Plant Pathologist of the Jewish Agency Agricultural Research Station at Rehovot was approached for the identification of diseased plant material.

Research and Investigations.

37. (a) *Pseudococcus comstocki*, Kuv. Although this insect gained new centres in the southern part of the country, in general no serious troubles were experienced with this pest of citrus during the year under review. It is believed that, as in the previous year, the release of some 80,000 chalcid parasites, *Clausenia purpurea*, Ishii, has in no small degree contributed to this control. This parasite was distributed free of charge to citrus growers for liberation. Mango was added as a new plant to the list of hosts of *Pseudococcus comstocki.*

(b) *Chrysomphalus aonidum*, Ashm. Black Scale.

A survey of Black Scale infested groves, carried out by the Fruit Inspection Service and supplemented and checked by the Plant Protection Service, revealed that this scale insect has spread considerably in citrus groves in the coastal plain. An exceptionally long period of summer weather created favourable conditions for the development of an additional generation. Spraying experiments with three mineral oil sprays, carried out in co-operation with an oil supplying company, gave encouraging results. Sprayed plots yield less than 10 per cent. culls, whereas untreated plots yielded over 90 per cent. and the total Black Scale population on the trees was very considerably reduced.

(c) *Deciduous Fruit Trees.*

(i) *Capnodis sp.*

Experiments with layers of sand at base of trees were continued.

(ii) *Ceratitis capitata*, Wied.

Spraying experiments on plums and peaches were carried out with cover-sprays consisting of 0.6 per cent. lead arsenate and applied in the 6th and 4th week before picking. The cover-sprays were followed by 3—4 spot-sprays of baits poisoned by tartrates, sodium fluosilicate and copper carbonate. While it was easy to remove the arsenic residue from plums it was difficult to do so from the felty skin of peaches. The results on plums were satisfactory. Trials were also made with sprays of tartrates of sodium, zinc and copper on apricots and peaches.

(iii) *Parlatoria oleae*, Colv.

Observations were made on the lifecycle of this scale insect attacking apple trees, with special reference to the over-wintering generation and degree of parasitism.

Experiments with oils of a medium-heavy grade applied as a winterwash gave fair results.

(iv) *Pseudococcus citri*, Risso.

Observations show that this mealybug shelters under the bark of vines in the hot months of June and July, but emerges later to infest the fruit. By the middle of August bunches become partly infested and by the end of the month the infestation is heavy. The mealybugs return to winter-quarters, under the bark, in the period mid-October to the beginning of November.

(d) *Cereals.*

Ed Duda, *Syringopais temperatella*, Led. continued to be subject to observations of its biology and methods of control.

(e) *Miscellaneous.*

(i) A considerable spread of Woolly Aphis *Eriosoma lanigera*, Hausm, was noticed on apples. Its parasite *Aphelinus mali* Hald which was liberated in the hilly country as well as in the plains established itself everywhere in the field, but nevertheless the infestation of Woolly Aphis remained heavy. Experimental sprays with oils and nicotine were carried out. The presumably resistant apple stocks received from Long Ashton did not show signs of attack by Woolly Aphis in the fifth year after planting.

(ii) Observations were made on the biology of the beetle *Phylloperta nazarena*, Mars. a pest of barley and wheat of the inner plain of Esdraelon, the Beisan valley and Nahalal area. Some laboratory tests for the control of larvae were also carried out.

(iii) Trials were made to observe the effect of substituting sodium fluosilicate dusts by one or two nicotine-oil sprays against the grape berry moth, *Polychrosis botrana*, Schiff.

(iv) Control experiments against codling moth, *Carpocapsa pomonella*, L. on apples and against pomegranate butterfly *Virachola Livia*, Klug. on the pomegranates were continued.

(v) *Hoplocampa flava*, L. which was thought to attack plums in the hilly country only was, for the first time, observed in the plain.

(vi) A locust unit headed by the Chief Plant Protection Officer, was sent for a second time to Saudi Arabia to participate in the general campaign against *Schistocerca gregaria*, Forsk, in co-operation with other Middle East Anti-Locust Units.

Extension Work.

38. Demonstrations to control various insect pests were made and practical advice was given to farmers throughout the country. Dusting and spraying operations were supervised in many villages by the staff of the extension branch.

Plant Pathology.

39. Spraying demonstrations with locally made lime sulphur were carried out against apple and pear scab, *Fusicladium* sp., against tomato leaf spot *Alternaria solani*, L. R. Jones et A. I. Grout. and against mildew on egg plant.

40. Applications of sulphur dust were demonstrated against *Erisyphe* sp. mildew of marrows. Control experiments were conducted in the Jordan Valley against gummosis on citrus caused by *Phytophthora citrophthora*, Sm. and Sm.

41. Prolonged and continuous rains favoured the development of rust disease causing considerable damage to grain crops especially in the southern part of the country.

42. Control demonstrations against common diseases of fruit trees and vegetables were carried out in various parts of the country.

Plant Quarantine.

43. The number of consignments imported was 907 of which 37 required fumigation. A total of 1,625 consignments was examined for export; of these 1,389 were fumigated. A total of 74 nursery licences were issued and 10 new nurseries were registered.

Fisheries Service.

44. The total quantity of fish landed from the sea and inland waters in the year under review was 3,120 tons, a record figure representing an increase of 590 tons over the figure for 1942-43. This was mainly due to an increase in the area of carp ponds from 2,000 dunums in 1942-43 to around 3,900 dunums at the close of the year under review, producing over double the quantity of fish marketed during the previous 12 months. An increase in the number of small trawlers to 30 at the close of the year and the partial raising, in May, 1943, of the ban on fishing with lights at night has also contributed to increased production. The cash value of fish landed has risen to even greater heights, the average prices obtained being almost double those obtained last year. No fish was landed by foreign vessels (apart from a few tons landed by a trawler owned in Palestine but flying the Egyptian flag).

45. Ninety per cent. of the 4,464 tons of fish imported came from Turkey either in brine, dry salted or as smoked fish.

46. Towards the end of 1943 the new Palestine fishery in the Gulf of Aqaba was started, but unforseen breakdown of the ship's engine has unfortunately delayed progress.

47. Dr. G. C. L. Bertram, Chief Fisheries Officer, left Palestine at the end of January, 1944, for service with the Middle East Supply Centre.

Kadoorie Agricultural Schools.

48. At the Kadoorie Agricultural School, Mount Tabor, there were at the end of the year under review, 49 resident students, of whom 25 were in their first year and 24 in their second and final year. Studies and practical work progressed normally and in a satisfactory manner. Diplomas were granted, in August, 1943, to 22 students who were successful in their final examinations. On the school farm particular attention was given to soil conservation, this being an important factor as the school is located in a hilly and eroded locality. Sheep pastures on the hillsides, which have been grazed in rotation, are already showing considerable improvement and there is a marked difference between these and similar areas grazed by local sheep and goats outside the school boundary fence. Water for irrigation has again been in short supply, a new bore hole sunk to a depth of 82 metres has so far proved ineffective. Labour for the school farm during the vacations was difficult to obtain and wages demanded exorbitant; however, students came to the rescue and volunteered to work on the farm during part of their vacation.

49. At the Kadoorie Agricultural School, Tulkarm, a satisfactory year was completed with 28 students in their first year and 25 in their second and final year. A rural teachers training class was revived in October, 1943, and consisted of 10 students under the instruction of a teacher seconded from the Department of Education. Some 50 dunums of the best land on the farm remained in occupation by the military authorities. Most of the new orchard has now been planted according to plan. The small Kerry dairy herd did not thrive well on the farm and was replaced by a few Lebanese cows transferred from the Government Farm, Acre.

SECTION III.

Legislation.

50. By an Order and Rules under the Citrus Control Ordinance published on the 16th December, 1943, citrus exports to Iraq and Turkey were exempted from all the principal provisions of the Export Rules; exports to Syria, Lebanon, Trans-Jordan and Egypt were already exempt. The Chief Horticultural Officer was also given power to permit the export of packs of fruit with case dimensions and/or counts otherwise than as specified in the Export Rules.

51. A short Fisheries (Amendment) Ordinance was enacted in March, 1944, to enable the Chief Fisheries Officer to suspend the validity of licences in addition to his powers to cancel licences.

F. R. MASON
Director of Agriculture and Fisheries.

Jerusalem,
7th August, 1944.

GPP. 21286—300—12.9.44